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(54) Device for exhibiting advertising images.

(57) The device exhibits images of products to be advertised mounted continually rotatable about axes (13) arranged in a space in any manner, consisting of a supporting framework (12) provided, at least at one end thereof, with a fixed element having an extended surface in transparent material, adapted to support images to be exhibited and, in a position facing the image-bearing element, with at least one rotatable element (4a,4b), bearing colors and other images, associated with a pivot (13) freely rotatable on a support (3a,3b) rigidly associated with the framework (12). The rotatable element (4a,4b) is subject to continuous rotations alternating in both directions according to preset angles, with respect to said fixed image-bearing element, by means of a miniaturized electronic circuit (6,9), independently powered by a battery (8) and adapted to cause said pivot to rotate by magnetic repulsion between an intermittently powered coil (6) and a permanent magnet (9).

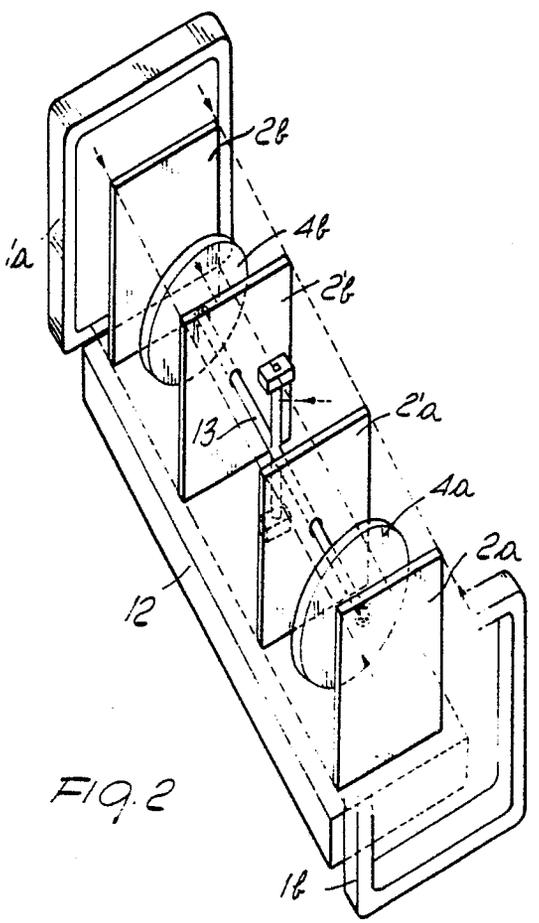


FIG. 2

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DEVICE FOR EXHIBITING ADVERTISING IMAGES"

The present invention relates to a device for exhibiting advertising images, in particular images of objects to be advertised, said images being selectively interchangeable and subject to a continuous movement about horizontal, vertical or in any way inclined axes.

Several types of exhibitors are already known for images both fixed and in rotational and/or translatory motion within box-like bodies provided with one or more faces in transparent material and internally illuminated.

Known exhibitors, both large ones and small ones, require actuation systems which employ mains electric power for the movement of the rotating elements supporting the images, figures and/or various inscriptions. In these cases, by means of light effects and movements of the images it is possible to provide variable visual effects and particular combinations of figures. However, in practice these known exhibitors can be installed and used in specific locations and environments, where electric power sockets exist, but they cannot be freely moved and positioned in any desired location when their occasional or temporary movement is required.

Moreover, exhibitors both with fixed and movable images entail an often hardly negligible power consumption and rather complicated and bulky motorized actuation means.

Therefore, the aim of the present invention is to provide a device for exhibiting advertising images wherein various images and/or figures of the objects or subjects to be advertised are moved continuously on supports rotatable about axes arranged in space in any manner, by means of an independently operated actuation device having very small weight and dimensions and being adjustable so as to obtain rotary alternate or oscillating movements and continuous rotations, also at adjustable speeds.

Another object of the invention is to provide a device for exhibiting advertising images which is capable of allowing, by virtue of rotations of images and/or colors with respect to other fixed images, combined with openings provided on the movable elements and/or on the fixed image-bearing elements, effective visual modifications of the object to be advertised, including the appearance and the disappearance of said advertised object.

Not least object is to provide a device for exhibiting advertising images, which is easily movable and transportable, such as to allow the rapid and easy interchangeability of the images and/or colors on the respective fixed and rotating supports.

This aim, as well as these and other objects which will become apparent from the following description, are achieved, according to the present invention, by a device for exhibiting advertising images and figures of objects to be advertised mounted continuously rotatable about axes arranged in a space, characterized in that it comprises a supporting framework provided, at least at one end thereof, with a fixed element having an extended surface in transparent material, adapted to support advertising images of products to be advertised and, in a position facing said image-bearing element, with at least one rotatable element, bearing colors and other images, associated with a pivot freely rotatable about a support rigidly associated with said framework, said rotatable element being subject to continuous rotations alternating in both directions, according to preset angles, with respect to said fixed image-bearing element, by a miniaturized electronic circuit, independently powered by at least one battery, said electronic circuit being adapted to impart said rotations to said rotatable element-bearing pivot by magnetic repulsion between two polarities of equal sign, one of said polarities being fixed and the other of said two polarities being movable.

More in particular, and according to a preferred embodiment, at least two fixed image-bearing elements, wherebetween said support for said rotatable pivot is centrally arranged, are provided in counterposed positions on said framework, with the opposite ends of said pivot there being rigidly associated two rotating elements bearing colors and other images, so as to obtain, on the opposite exposed faces of the image-bearing elements, total or partial modifications and variations of the fixed images, creating new repetitive visual effects.

Again according to the invention, between said support bearing said rotatable pivot and said rotating elements a further fixed element is arranged, bearing colors and the like, and is adapted to further modify, through openings provided in the rotating elements, the effects of the movement of said rotating elements.

The invention is hereinafter described in greater detail according to some practical embodiments thereof, with reference to the accompanying drawings, given only by way of non-limitative example, wherein:

figure 1 is an axonometric view of a device for exhibiting advertising images according to the invention;

figure 2 is an exploded or expanded view of the internal arrangement of the fixed and rotating elements, according to a first embodiment of the invention;

figure 3 is a schematic view of an embodiment of the device for actuating the movements of the image variation elements, used in the device for exhibiting advertising images of figure 1;

figure 4 is a schematic detail view of the electronic circuit used in the actuation device of figure 2;

figure 5 is a schematic exploded view of a double exhibitor with single control, according to another aspect of the invention;

figure 6 is a schematic view of a different embodiment of the device for exhibiting advertising images according to the invention; and

figure 7 is also a schematic view of a further structural aspect of the exhibitor according to the invention.

With reference to the above described figures, and in particular to figures 1 to 3, the promotional exhibitor object of the invention is substantially composed of a box-like body 1, in molded plastic material or other rigid material, provided in two openable parts with a supporting base framework or support 12, illustrated in enlarged scale in figure 2 for the sake of greater clarity. Inside the box-like body 1, a supporting element 3 is moued, and has the shape of a disc, or a pedestal or two uprights 3a-3b having any desired width (figure 3), provided with a central hole (or with two coaxial holes) for the passage of a pivot or shaft 13 with its related bearing, adapted to transmit motion to the elements bearing images and/or colors, as will be described in greater detail hereinafter. On the front and rear faces 2 of the body 1, which can be substantially defined by two frames 1a-1b, plates 2a-2b in transparent material are removably vertically coupled, and the images to be advertised are applied thereon by glueing or by other known means; the images are applied to the two opposite exposed faces of the transparent plates.

Two elements 4a-4b, in the shape of a disc or of any other geometrical form and provided in transparent or opaque material with preset openings, are rigidly associated at 4 with the opposite ends of the horizontal pivot 13, freely rotatable on bearings within the holes of the fixed element 3 (or of the two uprights 3a-3b of figure 3), and colors and/or other images, to be visually combined with the fixed images, are provided on the faces thereof, respectively facing the fixed image-bearing plates 2a-2b.

Said elements 4a-4b are caused to rotate continuously or alternately in both directions (oscillating), with respect to the fixed images 2a-2b contiguous thereto, so as to modify, with their repetitive motion and with the alternation of colors thus produced, the visual effect of the images of the advertised object or figure.

Between the fixed element 3 (and the elements 4a-4b) it is possible to arrange, according to the invention, two other elements 2'a and 2'b, in the spe of a planar plate or in any other geometrical shape and fixed to the base framework 12, which can be colored or bear images adapted to improve the effects of the movement of images and colors on said rotating elements 4a-4b. In practice, the two sets of three elements 2a-4a-2'a and 2b-4b-2'b face one another at short distance and are arranged in a symmetrical position with respect to the plane passing through the middle of the fixed central element 3.

The rotating elements 4a and 4b can be made in transparent material, or have openings on their surface. Figure 2 illustrates the diagram of the continuous movement about the pivot 13 of an electronic device. The pivot 13 moves in its rotary motion about an axis, the elements 4a and 4b, which by moving uncover and cover the images on the plates 2a and 2b and on the faces of the colored plates 2'a and 2'b, arranged behind the rotating elements 4a and 4b. In this manner, the advertising image is modified, giving the impression that it is moving in various directions or that it intermittently appears or disappears. The movement can be performed horizontally, vertically, in a spiral, oscillating, or with a 180° movement about the axis of the pivot 13. It is also possible, as will be seen hereinafter, to obtain a rotation of the pivot 13 equal to a complete and continuous round angle, i.e. 360°.

Figure 3 illustrates the electronic device generally indicated by the reference numeral 5. This electronic device consists of a coil 6 with two windings, of a miniaturized electronic circuit 7 powered by batteries 8 (figure 4), an axial bipolar permanent magnet 9, arranged projecting from the pivot 13, with an iron armature closing the magnetic field, and a counterweight 10. The beginning of the movement of the mechanism 5 is caused by the electric switching on of the coil, which occurs only upon the passage of the magnet 9; the coil 6, at each passage of the magnet 9, in fact closes the circuit of the coil, which produces a pulse with polarity equal to that of the permanent magnet, repelling it; the repulsion of the magnet and therefore of its arm 9a causes the pivot 13 to rotate until the reaction the counterweight 10 arrests it and

causes it to move backwards; when the magnet 9 passes again over the coil 6, this causes the rotation of the pivot 13 in reverse direction with respect to the previous rotation, and so forth.

Again according to the invention, if the counterweight 10 is replaced by a permanent magnet, a single electronic device can actuate the rotation of the pivots 13 of two assemblies of rotating plates in front of two assemblies of fixed image-bearing plates.

In fact, as illustrated schematically in figure 5, it is possible to arrange, in a single box-like body provided with a base framework 12, four fixed image-bearing plates 2c-2d and 2e-2f, and between each pair of plates it is possible to arrange shafts or pivots 13a and 13b, substantially parallel to one another, and each having mounted thereon, for example, a counterweighted disc-like body, respectively 14 and 14a, peripherally provided with a permanent magnet, respectively 15 and 15a; the coil 6a of the above described electronic circuit, supported by the base framework, is arranged between the two magnets. The opposite polarities of the coil 6a, at each passage of the permanent magnets, impart an oscillating rotation to the two pivots 13-13a, thus causing the simultaneous rotation of the rotating elements 4a-4b of each adjacent assembly.

According to a different embodiment, the device can be manufactured, as illustrated in figure 6, by arranging a coil 6a with a horizontal axis, supported by the base 12a, between two disc-like elements 4a-4b arranged mutually vertically coplanar or at angles to one another as in figure 5 and rotatably supported by an upright, respectively 16 and 17; two permanent magnets 18-18a, arranged at the periphery of the elements 4a-4b and counterweighted at 19-19a, are arranged facing at the two ends of the coil connected to the electronic circuit located on the base 12a; this arrangement causes a double continuous oscillating movement of the two elements 4-4a, the amplitude of the rotation being adjustable according to the weight and position of the counterweights.

If the counterweights 19-19a are then removed, after an initial movement of the elements 4a-4b, the repulsion, that is to say the rotational thrust, is generated on said elements after each rotation through 360° of the respective permanent magnets. This arrangement allows to provide particular exhibitors, that is to say with a simple rotation of the images or with the rotation of the elements 4a-4b, colored or bearing images, in a position facing fixed image-bearing plates.

Moreover, the device according to the invention can be manufactured, as illustrated in figure 7, to cause the rotation of a spherical or hemispherical body 20, either singe or concentric to another spherical or hemispherical body (or the like) maintained in a fixed position and reproducing, for example, a globe. A support 21, vertical or inclined as desired, supports in this case a fixed transverse bar 22 which bears, at one end, a coil and a related complete electronic circuit 23 and, at the other end, a counterweight 24. The hemisphere 20, oriented in any direction, and peripherally provided with a permanent magnet 25 and with the related counterweights 26-26a, is rotatably mounted on the support 21 by means of a bearing 24a.

The rotational movement of the hemisphere (or of two hemispheres forming a complete sphere) can be in the form of oscillating motions, or continuous rotation; in the latter case, as mentioned above, the counterweights are eliminated.

Various accessories can be associated with the device, as described according to some possible embodiments of the invention, thereby extending and improving its use. Thus, for example, it is possible to provide a wide support for resting on various planes, indicators for indicating of the opening hours of a shop and/or weekly closing day, and also luminous indicators (LEDs) with very low consumption, lit only when the coil is powered, as well as an intermittent acoustic call by means of a known voice synthesizer or the like.

Finally, in the practical embodiment, the fixed image-bearing plates can be arranged behind the rotating elements 4a-4b of the various forms described above, always providing effective modifications and variations of the images of the objects to be advertised.

Naturally, all the structurally and functionally equivalent embodiments which can be obtained with a miniaturized and independently powered electronic circuit device are within the scope of the present invention.

Claims

1. Device for exhibiting advertising images of objects to be advertised continuously rotatable about axes arranged in a space, characterized in that it comprises a supporting framework provided, at least at one end thereof, with a fixed element having an extended surface in transparent material, adapted to support images of products to be advertised and, in a position facing said image-bearing element, with at least one rotatable element, bearing colors and other images, associated with a pivot freely rotatable about a support rigidly associated with said framework, said rotatable element being subject to continuous rotations alternating in both directions, according to preset angles, with respect to said fixed image-bearing element, by a miniaturized electronic circuit, independently

powered by at least one battery, said electronic circuit being adapted to impart said rotary motions to said rotatable element-bearing pivot by magnetic repulsion between two polarities of equal sign, one of said two polarities being fixed and the other of said two polarities being movable.

2. Device according to claim 1, characterized in that said fixed image-bearing elements (2a-2b; 2c-2d-2e-2f) are arranged in counterposed pairs and are provided in the shape of plates of transparent material having a shape chosen among a planar circular shape and a quadrangular shape, a hemispherical shape and a spherical shape, and ae rigidly and removably associated within frames (1a-1b) forming the exposed faces (2) of the exhibitor.

3. Device according to claim 1, characterized in that said rotatable elements (4a-4b-20) are provided in counterposed pairs, are composed of transparent material with possible openings, and support colors and images which can be visually combined, during rotation, with the images of said fixed elements (2a-2b; 2c, 2d; 2e, 2f), each pair of said rotating elements being associated with the opposite ends of the said rotatable pivot.

4. Device according to claim 1, characterized in that, between each pair of fixed image-bearing elements (2a-2b; 2c-2d; 2e-2f) and each pair of rotatable elements (4a-4b), other fixed elements (2'a-2'b) are provided and bear colors and images adapted to further modify the visual effects caused by the movement of said rotatable elements (4a-4b-20).

5. Device according to claim 1, characterized in that said miniaturized electronic circuit comprises at least one coil (6-6a) with at least two windings, powered by at least one battery (8) by means of an electronic resistor circuit (7), of at least one permanent magnet (9) associated with said rotatable pivot (13, 13a) and at least one counterweight for said permanent magnet, at least one luminous indicator (LED) being furthermore associated with said electronic circuit.

6. Device according to claims 1 and 5, characterized in that said coil (6-6a) is arranged fixed on the supporting framework (12) and is axially interposed between two rotating elements (4a-4b) so as to simultaneously generate the alternate and continuous rotations of twoexhibitor assemblies arranged side by side.

7. Device according to claims 5 and 6, characterized in that said electronic circuit for the rotation of the pivot (13) bearing rotating elements (4a-4b-20) is arranged inside a hemispherical and spherical body freely rotatable on a supporting upright, said supporting upright (21) stably supporting said electronic circuit.

8. Device according to claims 1, 5 and 6, characterized in that said permanent magnet (9) is counterweighted to provide alternate movements of preset angular extent, while it is free from counterweights (10-26-26a) to provide continuous movements with rotations through 360°.

Fig. 1

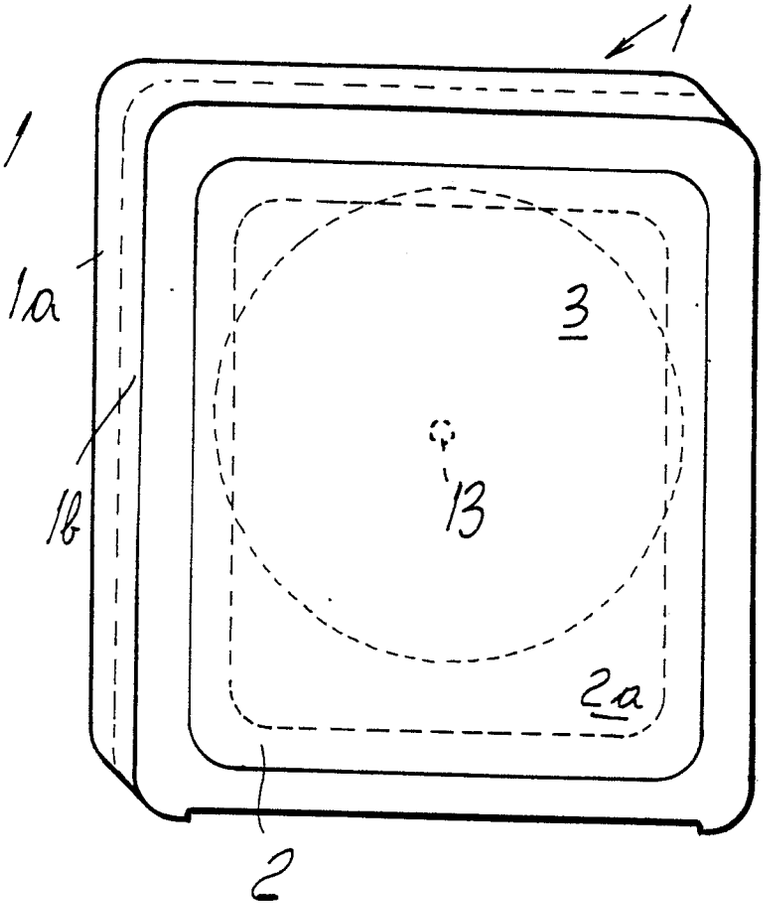
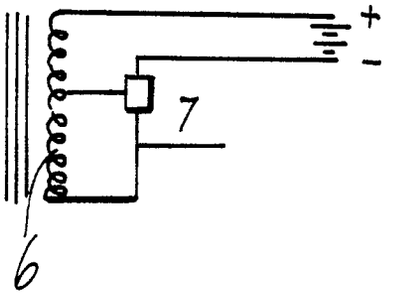


Fig. 4



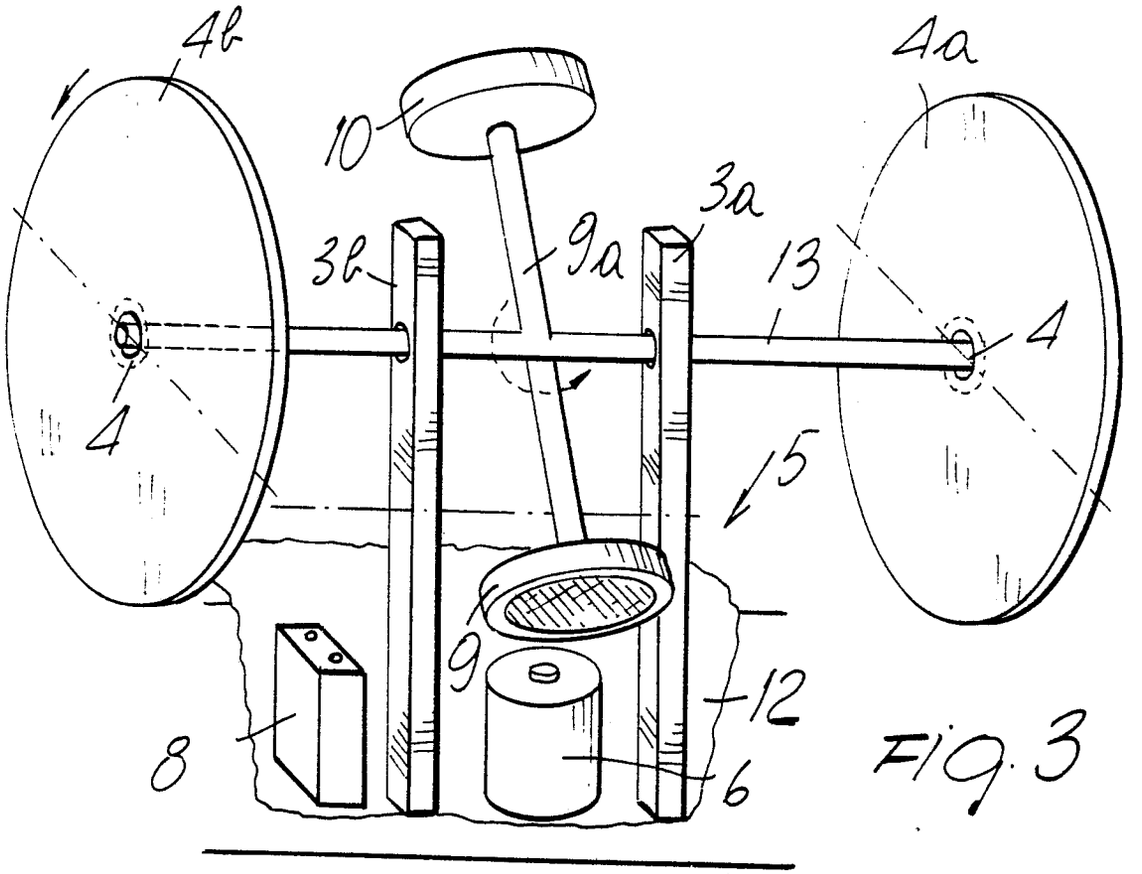


Fig. 3

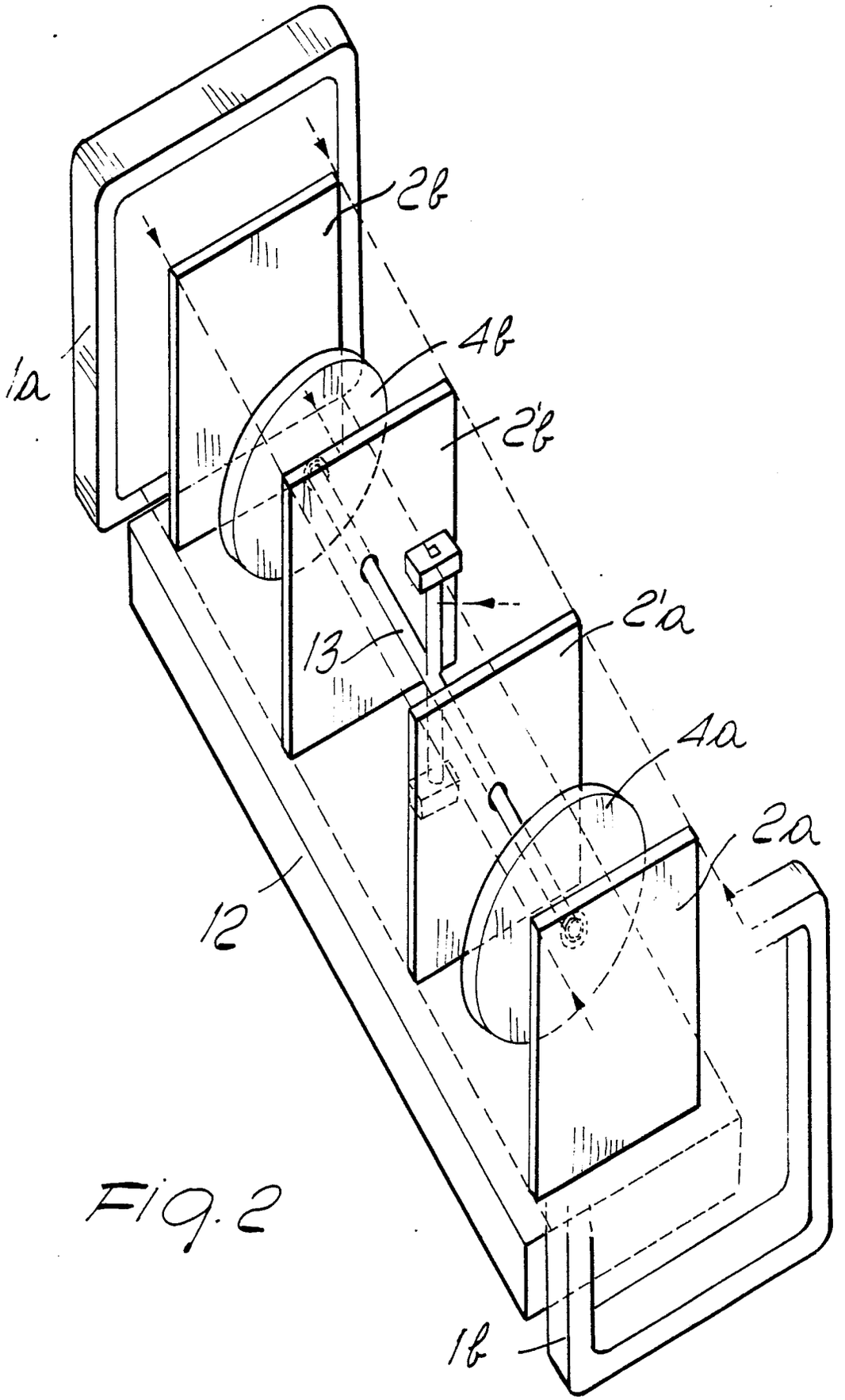


FIG. 2

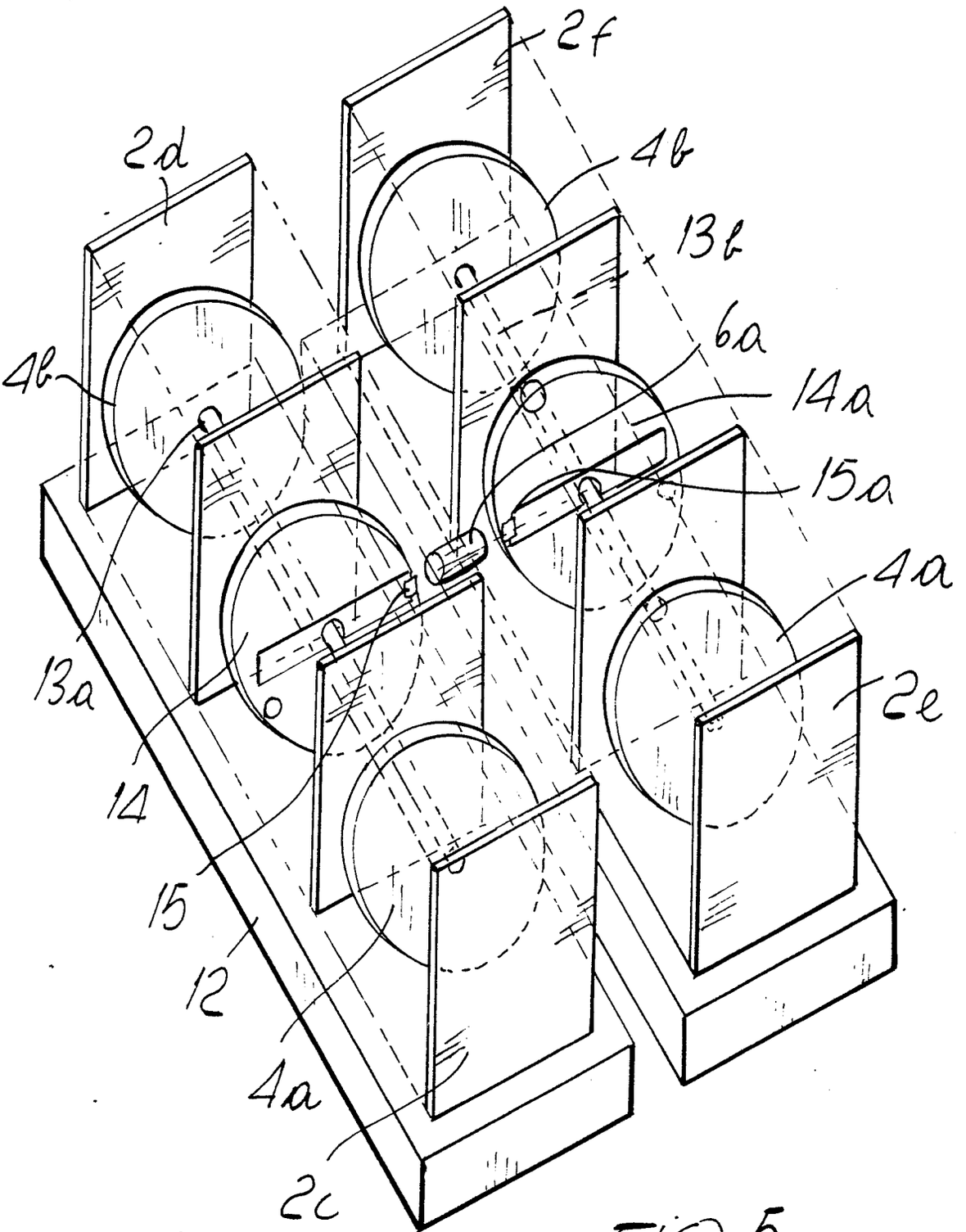


FIG. 5

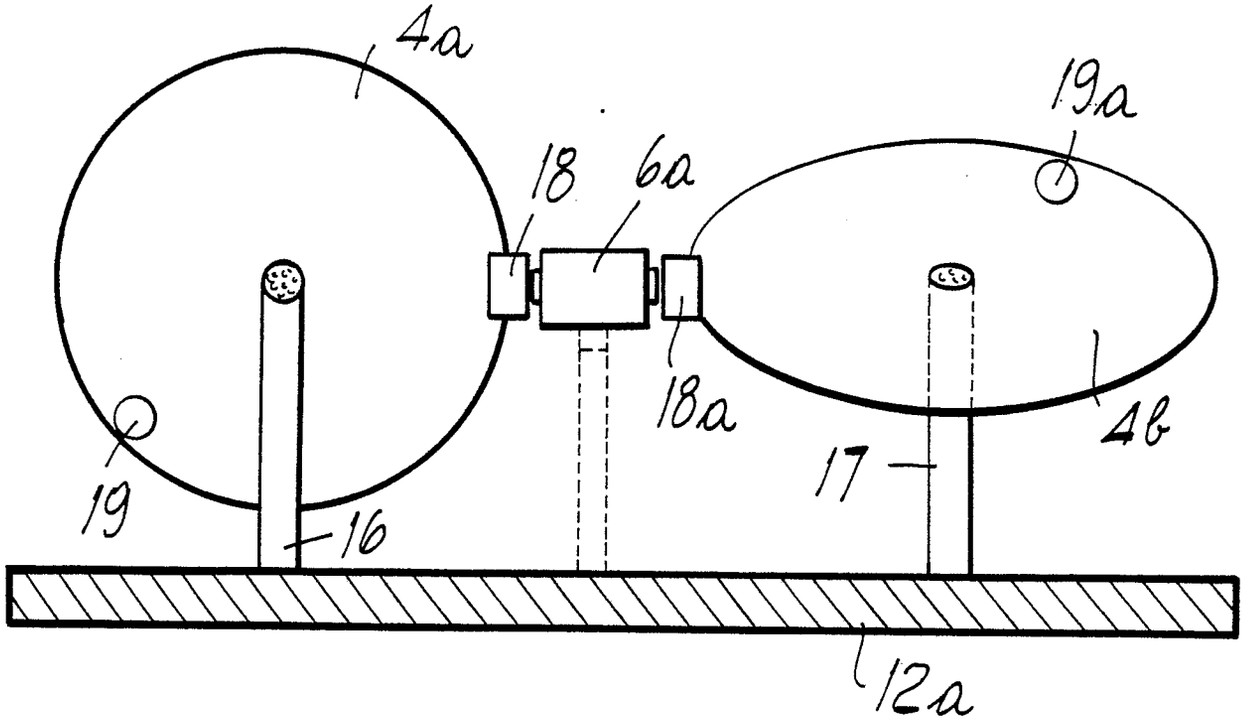


Fig. 6

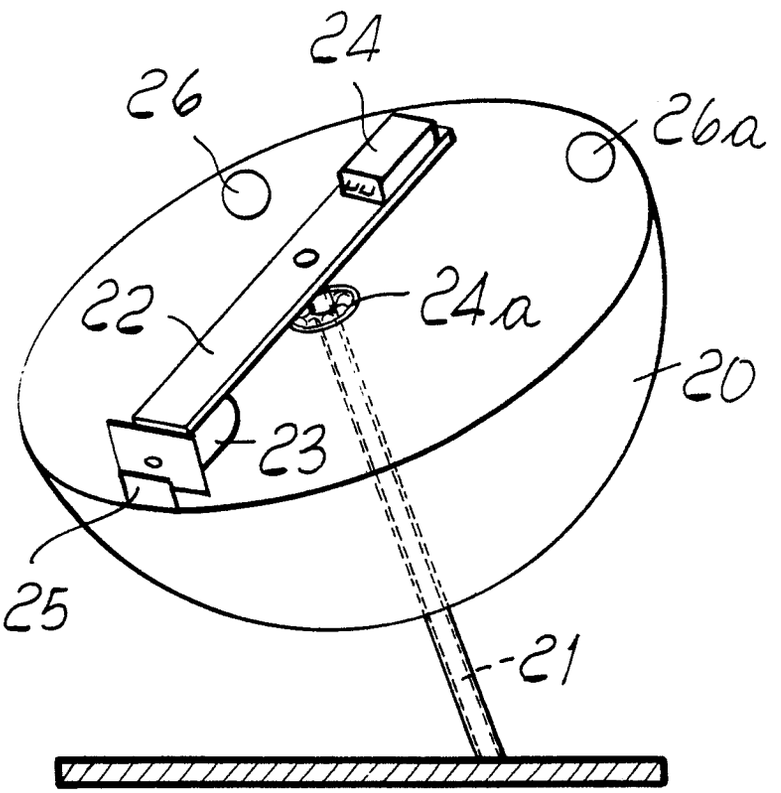


Fig. 7

European Patent Office

EUROPEAN SEARCH REPORT

Application number

EP 87 10 8548

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
Y	US-A-1 579 165 (TIENCKEN) * whole document *	1,5	G 09 F 11/04 G 09 F 13/36
Y	DE-U-7 511 056 (WEIGANG) * page 4, line 18 - page 5, line 25; figures 1, 2 *	1,5	
Y	US-A-3 325 759 (REIJIRO) * column 1, lines 15-57, column 2, line 46 - column 3, ine 45; column 8, lines 57-70; figures 1-11 *	1,5	
A	DE-U-8 230 425 (RHEIN-ELBE-WERKE LEUCHTWERBUNG) * page 3, line 16 - page 4, line 11; page 5, lines 4-23; figure 1 *	1,4	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	US-A-3 050 888 (MYERS et al.) * column 1, lines 31-59; figures 1, 2, 7 *	1,6	G 09 F 11/00 H 02 K 33/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	05-10-1987	BEITNER M.J.J.B.

CATEGORY OF CITED DOCUMENTS

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